DOCUMENT RESUME

ED 452 875 IR 058 134

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TITLE	Virtual Services for Virtual Readers: Reference Reborn in the E-Library.
PUB DATE	2000-10-00
NOTE	12p.; In: ALIA 2000. Capitalising on Knowledge: The Information Profession in the 21st Century (Canberra, Australia, October 23-26, 2000); see IR 058 109.
AVAILABLE FROM	For full text: http://www.alia.org.au/conferences/alia2000/proceedings/roxanne.missingham.html.
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Access to Information; *Electronic Libraries; Focus Groups; Foreign Countries; Information Technology; Internet; Library Cooperation; *Library Role; *Library Services; Models; National Libraries; *Reference Services; *User Needs (Information)
IDENTIFIERS	Australia; National Library of Australia

ABSTRACT

This paper discusses reference services in the digital library. The introduction provides definitions of a digital library, and the first section summarizes the purposes of a digital library system, as well as key roles for information professionals. The second section provides examples of mediated and unmediated digital reference. The third section addresses user expectations for reference in the digital environment. The fourth section presents results of focus groups conducted at the National Library of Australia to assess the needs of users both in the networked and print library environment; gaps in user and library perceptions are highlighted. The fifth section describes four models for digital reference: (1) the Collaborative Digital Reference Service, a pilot project developed by the Library of Congress to test the provision of professional library-quality reference service to users any time, anywhere; (2) the Co-operative Online Research Catalog (CORC), an OCLC project comprising a catalog of Internet resources and a mechanism to share pathfinders to help users identify Internet resources; (3) the Council of Australian State Libraries Working Group on Reference Issues, established to identify issues in which a collaborative approach will result in better reference services in Australian libraries; and (4) subject gateways. The final section considers future directions. (MES)

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Virtual Services for Virtual Readers: Reference Reborn in the E-Library

By:
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ALIA 2000

Proceedings

Virtual services for virtual readers: reference reborn in the E-library

Roxanne Missingham

Introduction

Virtual reference in the modern library is a surprisingly new notion. There original concept of a digital or virtual library evolved from a view that electronic information storage and access was the full scope of service for the new library. The original perspectives of a service oriented to files and 'resource discovery' based on file naming and retrieval algorithms. So why is this significant? In describing the development of the concept of a digital library the underlying service model can provide information on assumptions made about the roles of library users and librarians. The role of reference in digital or virtual libraries can be explored, based on both the original concepts and taking into account lessons learnt for reference in the printed library and the digital.

The early concepts of a digital library were based on a 'seamless' automated access to information without traditional reference services. For example among the early definitions of a "digital library" (sometimes referred to as "electronic library" and "virtual library") are:

- The digital library is not a single entity;
- The digital library requires technology to link the resources of many;
- The linkages between the many digital libraries and information services are transparent to the end users;
- Universal access to digital libraries and information services is a goal;
- Digital library collections are not limited to document surrogates: they extend to digital artifacts that cannot be represented or distributed in printed formats.

Purposes

The purposes of a North American digital library system are:

- to expedite the systematic development of: the means to collect, store, and organize information and knowledge in digital form; and of digital library collections in North America;
- to promote the economical and efficient delivery of information to all sectors of North American society;
- to encourage co-operative efforts which leverage the considerable investment in North American research resources, computing and communications network;
- to strengthen communication and collaboration between and among the research, business, government, and educational communities;
- to take an international leadership role in the generation and dissemination of knowledge in areas of strategic importance to North America;
- to contribute to the lifelong learning opportunities of all North Americans.[1]

The Digital Library Federation's definition is:

> "Digital libraries are organisations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that

> they are readily and economically available for use by a defined community or set of communities."[2]

Clifford Lynch defined digital libraries as an:

> "electronic information access system that offers the user a coherent view of an organized, selected, and managed body of information"[3].

Other approaches (including that of Apple Library) posed a concept of the Internet as the biggest library in the world with all the information needed at your fingertips. Key characteristics of these visions were the digitisation of information, its storage and retrieval. Emphasis was given to the development of new searching and resource description methods. The three key roles for professionals were anticipated to be the:

1. selection of material for digitisation, based either of usage or analysis of knowledge content and context, this was replaced relatively rapidly by a view that the mass of new material being 'published' or made accessible though the Internet would answer the information needs of all
2. assistance in the development of searching technology to improve precision and recall
3. the development with research communities or sites offering access to subject defined collections of portals
4. development of a 'MARC lite' form of resource description to enable searching to occur automatically - in the form of Metadata.

None of these alternatives provided a translation of the role of the reference librarian to the new environment. Underpinning much of the discussion that an assumption the 'disintermediation' or ''unmediated' access to information would provide a total solution, in fact the only solution, for the Internet user community. The vision was not totally matched by reality however - Clifford Stoll describes his search for an article, hunting the web for six hours seeking a particular item. After this unsuccessful hunt he turned to his local public library and had the reference to the article within minutes[4]. This indicated some cracks in the foundations of a total automated solution had begun to appear.

The service model for libraries and information access took a new direction with the recognition that the print and electronic environments would exist in parallel. A new concept emerged around 1997/98, of a library spanning electronic and print environments - the hybrid library. It can be interpreted as either a temporary holding pattern in the evolution of digital libraries or a pragmatic acknowledging that many printed materials will not be digitised perhaps ever. Hybrid libraries can also be seen as located on a continuum between the conventional and digital library, where electronic and paper-based information sources are used alongside each other. The challenge associated with the management of the hybrid library is to encourage end-user resource discovery and information use, in a variety of formats and from a number of local and remote sources, in a seamlessly integrated way. The hybrid library should be "designed to bring a range of technologies from different sources together in the context of a working library, and also to begin to explore integrated systems and services in both the electronic and print environments."[5]

The hybrid library should not, then, be seen as nothing more than an uneasy transitional phase between the conventional library and digital library but, rather, as a worthwhile model in its own right, which can be usefully developed and improved.[6] This model contains the natural reference librarian for the print world, allows for the existence of a 'Cybrarian' for the electronic environment but does not yet have a multi-skilled reference service at its core.

Some of the definitions which appeared after this evolution in thinking include Paul Duguid who described a digital library as "an environment to bring together collections, services, and people in support of the full life cycle of creation, dissemination, use, and preservation of data, information and knowledge"[7]. A full understanding of the role of reference (mediated and unmediated) is emerging now but a well-developed service model is still to be articulated. The concepts embedded

in the hybrid library and emerging knowledge management field offer the greatest insights at present.

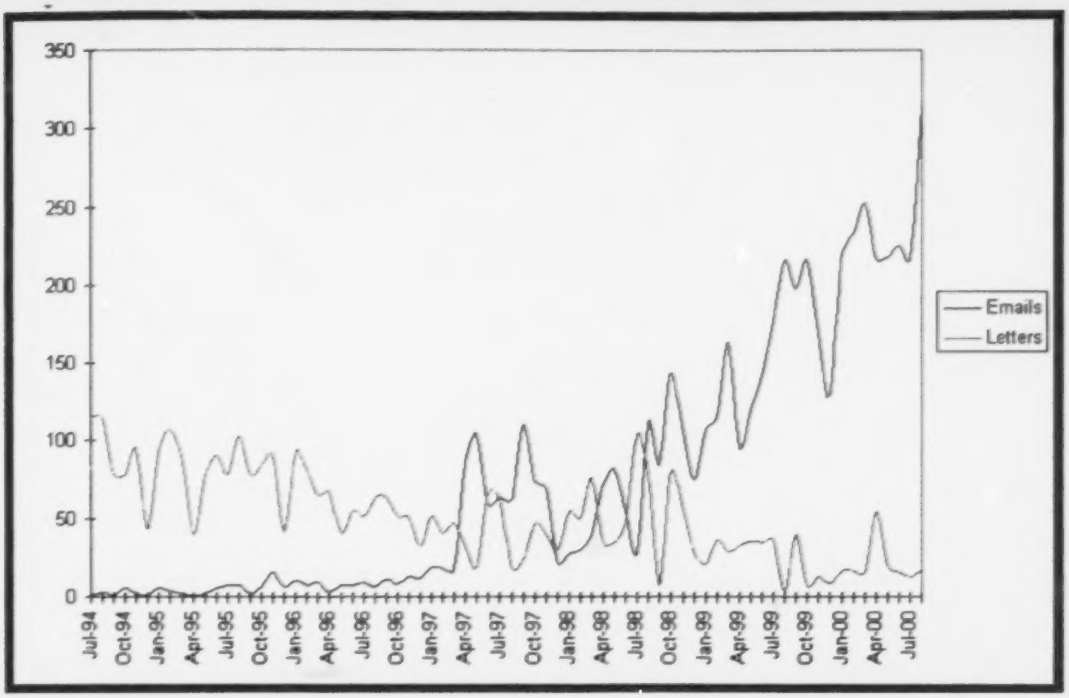
To explore the nature of reference librarianship in the digital or hybrid library this paper explores two perspectives - that of the users or clients and that of the library. The differences and similarities in the expectations of these two groups give an indication of how reference services can operate in the digital environment. They also provide a context for the trials of difference services, which are occurring in the National Library of Australia and in collaborative projects. Three online services - electronic reference enquiry approaches within the library and two collaborative approaches are then assessed against the expectations and as possible service models.

What is digital reference?

In research libraries such as the National Library of Australia users had been provided with reference services in mediated and unmediated transactions. In the print library mediated transactions are the face to face reference enquiries well described in library literature and for which the basic skills have been a core unit in library studies through the professions history. Unmediated reference occurs with the use of tools produced by libraries to enable users to access information or undertake their library research. Guides for readers, such as Pathfinders to subjects, information sheets on searching for types of materials such as journal articles, finding aids for manuscript collections and documentation on searching have been produced to enable users to research effectively. They have been a key component in the information literacy programs of libraries, in some cases being the only part of information literacy or training programs that have been available in all the hours that the library is open.

In the networked environment libraries have make guides and pathfinders available online, often integrated with digital resource lists, such as at the National Library and in OCLC's CORC project. This first stage of evolution of digital self-help or unmediated reference was a natural first step. Guides were already in electronic form, generally as word processing documents and had been tested with the user population and developed over many years.

Mediated reference enquiries in the digital world are those which are expressed in electronic form. The most commonly used methods are email or web form, now widely available in research libraries. All Australian State libraries and the National Library have web forms and email reference services, in the National Library's case dating back to 1994. Research into use of the digital reference service indicates a significant uptake of this medium for transmitting reference enquiries. As an example the increase in electronic reference enquiries shows a consistent pattern:



For unmediated reference services general web site statistics show a steady increase. Differentiating reference products from the web site in general has commenced with detailed report available through products such as Webtrends. For example, the National Library's Reference and Newspaper pages are in the top 3 directly accessed. The Australian newspapers and Newspapers home page are accessed over 10,000 times per month.

User expectations for reference in the digital environment

In understanding digital reference needs of users librarians have been able to take account of research into user needs in mediated on-site reference. There are some major differences in the patterns of enquiries electronically, as well as some differences in characteristics in the networked environment. Perhaps the most obvious is the nature of the users relationship to the library. When users had to physically visit or write to a library they had a relatively clear understanding of the role of the particular library and their relationship with it. If they were studying at a campus the educational nature of their information needs was relatively obvious in their use of the academic library. In a research library the visible collection gave a strong presentation indicating the subject interest of the organisation. Users visiting the library in various organisations were explicitly reminded of the nature and purpose of the library, through location, signage and collections.

Users have experienced library services through a number of different facets of their life. The fact that many users used a wide range of libraries because of the distribution of collections has been well established.[8] While many users visit a range of research and academic libraries to support their on-going information needs, others had different roles with various libraries. In a typical example a user may work in an agency and use that library for work related research, be studying at an academic institution and use that library for their study, use the National Library to supplement other libraries both for academic and work related research and use the local public library for recreation as well as supplementing study materials. Users may well in the print world have 'belonged': from the library point of view to 4 or 5 or more libraries, segmenting their use through visits. The concept of 'My library' is then a network of libraries, each different and potentially confusing.

A networked environment allows a different perspective to be taken to library services. The clues

that exist in the physical library to orient users and make clear the services and collections available are much more elusive and complex in the electronic environment. Users also have the opportunity for an immediacy of service, which means their interaction is effectively 'seamless'. In this model reference service is on tap, clearly visible with a turnaround time of minutes rather than hours.

For virtual library services clients are required to navigate around library web sites. The challenge of determining the details of subject, geographic and temporal coverage of the library's collection and knowledge is significant. While the organisations name may give some clues, particularly if the user is a student or on the staff of an organisation, different knowledge is required to use each library's web site. 'Seamless' service may exist in any one library's web site but for a user navigating through more than one library the result is very far from seamless. The

To assess the needs of users both in the networked and print library environment a series of focus groups were conducted at the National Library from July to September 2000. The three groups comprised of post-graduate humanities students from the Australian National University, Petherick Reading Room (Australiana) Readers and members of the Independent Scholars Association of Australia. The focus groups have focused both on expectations of services in the hybrid library.

What do users really want?

The key comments made in focus groups were that users wish to access a mix of print and electronic resources with a new reference service. Traditional mediated reference services answering enquires are seen by the users canvassed as not as critical as they have been. Rather, users expect the reference service to provide them with the skills and knowledge to be able to search effectively themselves in the networked environment. Users recognise that this is very complex and requires constant work because of the changing (and increasing) resources available. Additional complexity is added by the fact that individual libraries offer access through different interfaces, offer different full text and indexes and have different degrees of coverage of their collections in electronic catalogues.

Users expect libraries to offer 'one stop shop', however they recognise that different resources and reference services are provided depending upon the nature of the library. The time required to retrain and reorient for each library was seen as a significant impediment to effective research.

Unmediated reference services together with training emerged as the Cinderellas of reference service in a networked environment. Training, particularly for users inexperienced in the use of computers and also for those accessing new resources. Training was seen as essentially a face to face service in small groups, partly as this facilitates self paced learning and offers flexibility. Information literacy programs based on either automated or online tutorials or rigid programs were considered to be of only limited use. Unmediated online reference services such as lists of resources and guides to library research were seen as very valuable as they could be accessed anywhere, anytime.

In summary users expressed a desire to access resources, both library collections and tools to assist their research (unmediated reference) 24 hours per day in the situation of greatest convenience. Many users study late at night and wish to work effectively without requiring mediated reference services at this time. However, there does remain a need for mediated reference services in training and answering library research enquires.

Counterbalancing this is the experience of the National Library in email and webform enquires. These enquires suggest that for many Australians information is now thought of as completely digital and freely available. They expect library staff to provide resources directly. They appear to have lost an understanding of the library research process and the need to structure enquires for persistent searching. The new model of digital libraries incorporating information literary skills and services requires a long term program to develop the knowledge of our users.

Matching library user and library expectations for digital reference reveals some gaps in

perceptions. The main differences are:

Library User Perceptions	Library perception
'Belong' to many users	Se[illegible]sers as 'belonging' to that library
Experience information needs anywhere at anytime	See interactions on web site (resource access and unmediated reference) and in library 'space/hours' in mediated reference
Not dependant on individual products but seek aggregated tailored access	Structure information by details of each component eg. Title, publisher

Models for Digital Reference

In the print world libraries answered reference enquires form their collection, the knowledge of library staff and the network of contacts or other libraries developed over years. The principles of such a reference service include a recognition of the role or scope of each library, defined relationships with other libraries; knowledge of the collection strengths and a commensurate knowledge of the strengths of library staff.

While these principles apply in the digital environment the potential scope of collections with Internet access is vast. Users may also come from communities not previously served buy the library, but for whom Internet access has enabled the breaking of boundaries of geographic or knowledge isolation.

These complex issues have led to the development of collaborative models of digital reference services. These models can build upon the distributed strengths of libraries and their ready connectivity. Some of the models that have emerged can be seen in the Collaborative Digital Reference Service; State/National Library Cooperation; CORC and subject portals

Collaborative Digital Reference Service

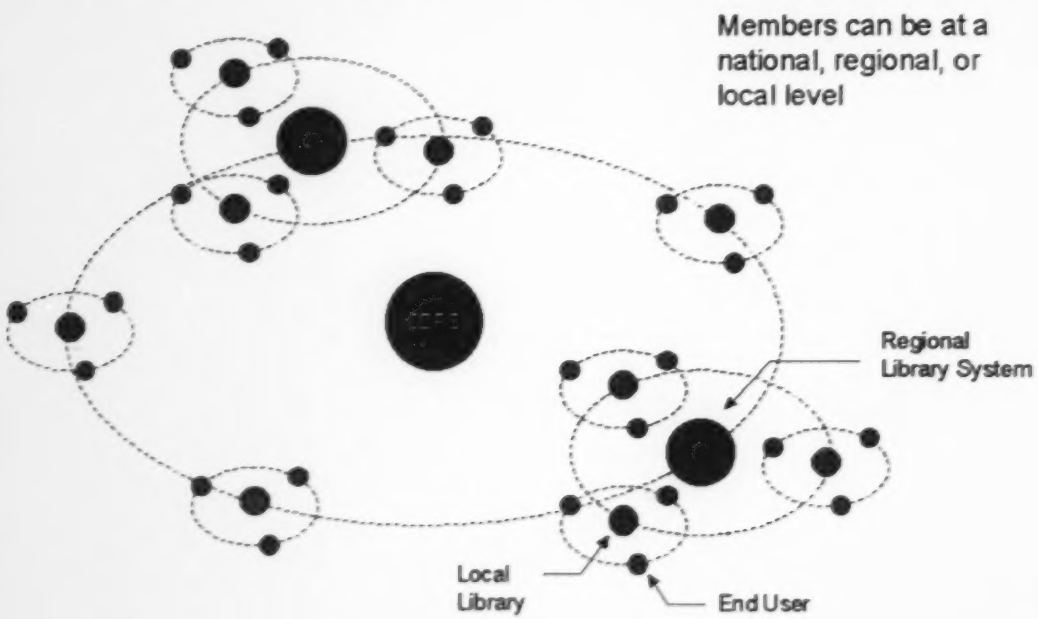
The National Library is participating in an initiative developed by the Library of Congress, the Collaborative Digital Reference Service. The participants (eight from the USA, National Library of Canada and National Library of Australia) are taking part in a pilot project to test the provision of professional library-quality reference service to users any time anywhere (24 hours per day 7 days per week), through an international digital network of libraries.

Phase 1 took place from February to March 2000. The goals were build a system with information on the subject strengths and availability hours of participating libraries for online reference, to enable routing and management of reference enquiries. To help build these profiles all libraries, including the National Library, contributed some general reference enquiries and answers, to indicate their subject strengths. A web inquiry form has been constructed and tested.

In phase 2, due to commence in July, further work will be done with the software including more robust testing of automated routing of inquiries, workflow issues, statistics and benefits of using the service. This phase will include referring current inquiries asked of member libraries to other libraries and will end in August 2000. Administrative issues including legal issues, staff training and service level agreements will begin to be resolved.

The final phase for this year, phase 3, will commence in August and end in September. It will enable detailed evaluation to take place. During this phase we will take inquiries from patrons and will 'stress test' the model, service levels, performance, costs, benefits and management/governance issues.

The project aim is for participant libraries with branch or other local libraries share the answering of reference enquiries based on their areas of expertise, aiming in the long run for 24 hours a day 7 days a week online reference services. A conceptual model of the service is:



Participants in phase 1 and 2 the project include:

- Library of Congress
- Cornell University
- University of Texas, Austin
- Santa Monica Public Library
- Morris County Public Library
- Peninsula Library System (San Francisco area)
- National Agricultural Library (USA)
- National Library of Canada
- National Library of Australia
- Smithsonian American Art Museum

Co-operative Online Research Catalog (CORC)

In 1998 the largest American supplier of bibliographic records, OCLC, announced it would work on the development of a Co-operative Online Research Catalog project. The project comprised 2 parts - first a catalogue of Internet resources, to which the National Library contributed records from Kinetica and secondly a mechanism to share guides (called pathfinders by CORC) to help readers identify Internet resources, material held in library collections and databases primarily based on subjects. An example of a guide that we produce which would be usefully shared with other libraries is 'Australian literature on the Internet'. This guide is of great interest to American universities offering course in Australian and New Zealand Studies. During the pilot phase the National Library tested 3 guides through the Pathfinder system. Consultations are continuing about the publication of guides on CORC.

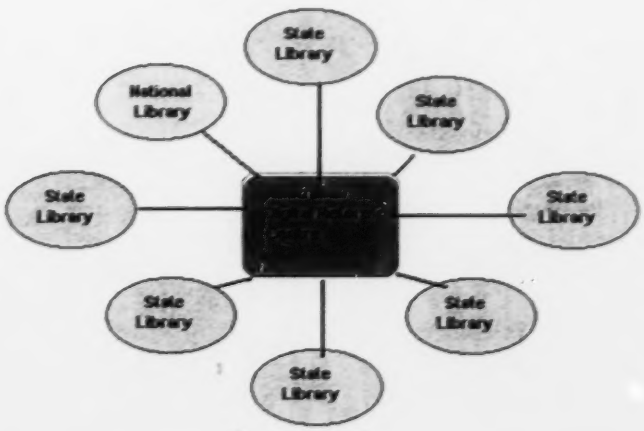
From 1 July 2000 the Internet resources catalogue component of CORC has become a production system, with a new charging schedule. The pathfinder project has yet to reach a successful technical architecture. The National Library produced a report on CORC pathfinders in late 1999 suggesting some development directions that would improve the effectiveness and efficiency (http://www.nla.gov.au/nla/staffpaper/rmissingham1.html). We have provided advice to the other Australian libraries, University of New South Wales, Monash University and University of Melbourne on CORC pathfinders. The University of New South Wales Library also conducted an extensive evaluation and produced a report, which identified similar strengths and weaknesses in CORC. OCLC have indicated they will be reinvestigating pathfinders after the launch of the CORC database, and have developed a proposed list of enhancements based to a large extent on our recommendations.

Council of Australian State Libraries Working Group on Reference Issues

The Council of Australian State Libraries approved the establishment of a Working Group on Reference Issues at its June 2000 meeting, and discussed the possible role of such a group. The National Library is chairing this group. The draft terms of reference are to identify issues in which a collaborative approach will result in better reference services in Australian libraries. Major issues include working towards an Australian library reference collection and virtual reference services. The group will also investigate developments such as call centre technology, and discuss reader research and reference needs, benchmarking and staff competencies. Membership includes Reference Managers from all state and territory libraries and the National Library.

Priorities for 2000 include collaborative work on reference tools, such as reader guides and Internet guides. The benefits of the project will be to enhance access to this information though creation of Australian library guides to resources covering all states and territories and also in reduce the duplication of work done in each library on these guides.

A model of the potential shape of the service follows:



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This initiative has potential to provide an Australian node for the Collaborative Digital Reference Service. It should also provide a model for sharing pathfinders to contribute to CORC.

Subject gateways

A concept of subject access to electronic information has been developed in a new form with the

introduction subject portals or gateways. These aim to enable access to resources within a defined area, forming the next generation of tools, a step up from the resource discovery tools of enthusiastic researchers or amateurs. The fundamental purposes of the information portals are:

- Provide for convenient and effective access to information resources (most often Internet resources) through a single gateway
- Description of resources according to agreed standards after selection for quality and subject content
- Identification of information resources to agreed content guidelines (most often subject areas such as agriculture or chemistry).

The National Library has been involved in the development of technical and policy advice (through Debbie Campbell) and in participation through contribution of records. This model of unmediated access offers great potential for sharing resource description for 'one stop shop' subject access.

Issues for future development include integration of access to print and electronic resources, promotion and sustainable funding.

Future Directions

Australian libraries have offered access to digital resources since the early 1970's with the first loading of a database being Chemical Abstracts in 1966. The explosion of access to digital resources is however a relatively recent phenomenon. In the evolution of digital libraries the simple assumptions that collections of resources and sophisticated search engines will answer the worlds enquires is being replaced by new virtual service models.

Collaboration appears to be the key for effective use of information services, both mediated and unmediated. The experiments of CDRS, CORC, Australian co-operation and subject portals provide defined individual projects to test these new models. In looking for future directions, forthcoming evaluations and consideration of how the projects could be amalgamated into larger combined services will be the next steps.

Major issues including the role of the National Bibliographic Database, a possible Australian metadata repository and knowledge management system to create access to implicit knowledge need to be addressed. In all of these the National Library and other Australian libraries need to continue to actively debate tools and services.

Further research on the information needs and patterns of use of electronic reference will provide the basis for future developments. We will be conducting a study of electronic reference use in early 2001 which will enable tailoring of service and exploration of more reference models. For reference service the challenges in virtual libraries are just beginning and will be an area of exploration beyond traditional library walls.

Footnotes

1 Definition of a Digital Library, http://sunsite.lib.berkeley.edu/ARL/definition.html

2 DLF Working definition of a digital library, http://www.clir.org/diglib/dldefinition.htm

3 Lynch, Clifford, Chapter One CNI White Paper on Networked Information Discovery and Retrieval, 1995. http://www.cni.org/projects/nidr/

4 Stoll, Clifford *Silicone snake oil: second thoughts on the information highway*, New York, Doubleday, 1995. See page 194-5

5 Chris Rusbridge "Towards the hybrid library" *D-Lib Magazine*, July/August 1998. http://www.dlib.org/dlib/july98/rusbridge/07rusbridge.html

6 Realizing the Hybrid Library Stephen Pinfield, University of Birmingham; Jonathan Eaton, London Business School; Catherine Edwards, University of Northumbria at Newcastle; Rosemary Russell, University of Bath; Astrid Wissenburg, King's College London; Peter Wynne, Manchester Metropolitan University. *D-Lib Magazine*, October 1998. http://www.dlib.org/dlib/october98/10pinfield.html

7 Duguid, Paul Report of the Santa Fe Planning Workshop on Distributed Knowledge Work Environments 1997. http://www.si.umich.edu/SantaFe/

8 Milne, P. Scholarly communication: poised for change at ANU. In `Libraries: the heart of the matter'. *Proceedings of the Australian Library and Information Association 2nd biennial conference*, Albury-Wodonga, 27 September - 2 October 1992 p.245+

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